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SEED REPORT

1919

JAMES W. KELLOGG, Chief Chemist

BUREAU OF CHEMISTRY

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NOTICE

On January 1, 1920, the duties of Seed Inspection and the enforcement of seed laws were transferred to the BUREAU OF PLANT INDUSTRY of the Pennsylvania Department of Agriculture, State Capitol, Harrisburg, Pa., to which correspondence and samples should be directed.

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LETTER OF TRANSMITTAL.

DEPARTMENT OF AGRICULTURE,
BUREAU OF CHEMISTRY.

Harrisburg, Pa., February 4, 1920.

Hon. Fred Rasmussen,
Secretary of Agriculture,
Harrisburg, Pa.

Dear Sir:—I have the honor to transmit herewith for your approval a report of the inspection of agricultural seeds showing the results of tests for purity of the samples received from the special Agents during 1919.

It is recommended that this report be published in bulletin form for distribution.

Very respectfully,

JAMES W. KELLOGG,
Chief Chemist.

SEED REPORT
1919

INTRODUCTION

In accordance with the requirements of the seed law in the inspection of agricultural seeds during 1919, 269 official samples obtained from seed dealers by the special agents and 71 special samples submitted by local dealers and growers were tested for purity. Each sample was carefully examined for the presence of dodder and Canada thistle and other foreign and noxious seeds and determinations made for the percentages of "Pure Seed," "Foreign Seed" and "Inert Matter" by the Seed Analyst, Howard E. Gensler, assisted by Ruth I. Mentzer.

There were 20 different kinds of seeds included with the official samples, the largest number received being those of red clover, alfalfa, timothy grass and alsike clover. There were 23 samples, or 8.6 per cent., which failed to meet the required standards of purity, and 86 samples represented shipments where guarantees for purity in excess of the required standards were given and of this number 44 were found upon being tested to meet the higher guarantees. The character of the seeds sold in the State, as shown by the samples examined, was as a rule above the requirements and the average results exceeded the respective standards in each kind of seed where a fair number of samples were tested, indicating that the seeds were of a better quality than those inspected during 1918. The requirements of the seed law have been beneficial in improving the grades of seeds sold and the tendency has been to guarantee in excess of the requirements.

Of the 71 special samples submitted for purity tests about one third failed to meet the fixed standard indicating that lots represented by the low grade seed were in need of being recleaned before being offered for sale.

In the following pages will be found the Standards of Purity; directions for having special samples tested; the results of purity tests determined in the special samples, included in Table I; the average purity of official samples; and Table II, which includes the result of purity tests on each official sample received during the year.

STANDARDS OF PURITY.

The standards of purity established by the Seed Law include twenty kinds of seeds which, before being offered for sale, should meet the standards, ranging from 75% to 97% as follows:—

Medium Red Clover,	Trifolium pratense,	97 %
Mammoth Red Clover,	Trifolium pratense,	97 %
Crimson Clover,	Trifolium incarnatum,	97 %
Alfalfa,	Madicago sativa,	97 %
Timothy Grass,	Phleum pratense,	97 %
Barley,	Hordeum vulgare,	97 %
Spelt,	Triticum aestivum Spelta,	97 %
Wheat,	Triticum aestivum,	97 %
Buckwheat,	Fagopyrum Fagopyrum,	97 %
Oats,	Avena Sativa,	97 %
Rye,	Secale cereale,	97 %
Alsike Clover,	Trifolium hybridum,	95 %
Perennial Rye-Grass,	Lolium perene,	95 %
German Millet,	Chaetochla italica,	95 %
Hungarian Millet,	Chaetochla italica,	95 %
White Clover,	Trifolium repens,	90 %
Redtop Grass, (solid or hulled).	Agrostis alba,	85 %
Canadian Blue Grass,	Poa Compressa,	75 %
Orchard Grass,	Daetylis glomerata,	75 %
Kentucky Blue-Grass,	Poa pratensis,	75 %
Redtop (unhulled),	Agrostis alba or palustris,	75 %

Dodder and Canada thistle are prohibited from being present in excess of 1 seed in 3,000.

SPECIAL SAMPLES TESTED FOR PURITY.

The Department will test special samples of seed for purity for residents of the State for a fee of 25 cents for each sample as provided by the law making determination for pure seed, foreign seed, and inert matter. Owing to the fact that the law does not require germination tests to be made or the percentage of germination to be given, such tests on special samples cannot be made. As all seeds when offered for sale are required to meet certain specified standards it is important that, where any doubt exists as to the quality of such seeds to be sold or purchased, samples be sent to the Department to determine their grade or purity. Those wishing this work done should carefully note the following directions.

Amount of Sample:—A three or four ounce sample of the seed, carefully secured and representative of the whole lot or shipment, should be placed in suitable containers, preferably envelopes, which can be tightly closed and sealed.

Charge for Purity Test:—The fee charged for testing is 25 cents and should be submitted with the sample in the form of a check, money order or cash. Stamps will not be accepted. Where only one or two samples are to be submitted, it is preferable to send the fee in cash, which may be inserted in the sample of seed with safety, if the envelopes are carefully sealed.

Address:—The name of the seed and the name and address of the sender should be present on the package or envelope and the samples sent by mail to the Bureau of Plant Industry, Pennsylvania Department of Agriculture, Harrisburg, Pa. In order to avoid errors and delays in receiving reports a letter should accompany the samples requesting that they be tested for purity, giving the name of each kind of seed submitted.

The special samples of seed tested for purity during the year numbered 71 and included 41 samples of red clover, 2 of alfalfa, 20 of timothy grass, 5 of common millet and 2 of Kentucky blue grass. One-third of this number failed to meet their respective standards upon being tested. The average results secured were as follows: Red clover 96.22, 15 being below standard; alfalfa 98.25 per cent.; timothy grass 97.19 per cent., 3 being below standard, alsike clover 92.89 per cent., 3 being below standard; common millet 98.83 per cent., and Kentucky blue grass 73.72 per cent., 1 of which was below the standard. The results secured on each sample are included in the following table.

TABLE I.—RESULTS OF TESTS ON SPECIAL SAMPLES.

Analyst's number.	Name of Seed.	Pure seed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
		Per ct.	Per ct.	Per ct.	Approx.	Approx.
B 1067	Red clover,	98.81	0.12	1.07		
B 1070	Red clover,	99.49	0.06	0.45		
B 1071	Red clover,	94.74	0.51	4.75		
B 1072	Red clover,	93.14	4.43	2.43		
B 1073	Red clover,	96.92	3.01	0.07		
B 1074	Red clover,	98.96	0.62	0.42		
B 1075	Red clover,	96.30	3.05	0.65		
B 1076	Red clover,	92.86	5.97	1.17		
B 1077	Red clover,	97.45	2.15	0.40		
B 1078	Red clover,	99.70	0.25	0.05		
B 1079	Red clover,	98.11	1.19	0.70		
B 1080	Red clover,	99.56	0.19	0.25		
B 1081	Red clover,	96.53	2.65	0.82		
B 1082	Red clover,	97.85	1.93	0.22		

TABLE I.—RESULTS OF TESTS ON SPECIAL SAMPLES—Continued.

Analyst's number.	Name of Seed.	Pure seed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
		Per ct.	Per ct.	Per et.	Approx.	Approx.
B 1083	Red clover,	98.03	1.20	0.77		
B 1084	Red clover,	98.86	0.77	0.37		
B 1085	Red clover,	98.25	1.46	0.29		
B 1086	Red clover,	93.17	3.12	3.71		
B 1087	Red clover,	93.44	5.48	1.08		
B 1088	Red clover,	98.66	1.21	0.13		
B 1089	Red clover,	92.87	5.82	1.31	1-1625	1-1530
B 1090	Red clover,	93.38	5.93	0.69		
B 1091	Red clover,	91.94	1.54	6.52		
B 1094	Red clover,	99.14	0.25	0.61		
B 1095	Red clover,	99.88	0.00	0.12		
B 1096	Red clover,	99.38	0.27	0.35		
B 1097	Red clover,	76.84	21.47	1.69		
B 1098	Red clover,	97.58	1.86	0.56		
B 1099	Red clover,	99.23	0.35	0.42		
B 1100	Red clover,	95.96	2.25	1.79		
B 1106	Red clover,	97.67	1.23	1.10		
B 1123	Red clover,	98.50	0.75	0.75		
B 1124	Red clover,	97.92	1.35	0.73		
B 1128	Red clover,	98.53	1.15	0.32		
B 1129	Red clover,	98.15	1.64	0.21		
B 1130	Red clover,	82.90	13.52	3.58		
B 1131	Red clover,	99.61	0.22	0.17		
B 1134	Red clover,	98.60	1.40	0.00	1-39762	
B 1135	Red clover,	99.54	0.30	0.16		
B 1136	Red clover,	99.25	0.72	0.03		
B 1137	Red clover,	87.12	7.65	5.23		
	Average,	96.22	2.66	1.12		
B 1116	Alfalfa,	98.21	1.22	0.57		
B 1117	Alfalfa,	98.28	1.42	0.30		
	Average,	98.25	1.32	0.43		
B 1002	Timothy grass,	98.05	0.71	1.24		
B 1003	Timothy grass,	62.11	34.52	3.37		
B 1101	Timothy grass,	99.53	0.24	0.23		
B 1102	Timothy grass,	99.62	0.18	0.20		
B 1107	Timothy grass,	98.91	0.61	0.48		
B 1108	Timothy grass,	99.73	0.10	0.17		
B 1109	Timothy grass,	99.79	0.03	0.18		
B 1110	Timothy grass,	99.49	0.38	0.13		
B 1111	Timothy grass,	99.14	0.66	0.20		
B 1112	Timothy grass,	99.72	0.02	0.26		
B 1113	Timothy grass,	99.44	0.40	0.16		
B 1114	Timothy grass,	95.17	0.47	4.36		
B 1115	Timothy grass,	95.42	4.52	0.06		
B 1118	Timothy grass,	99.69	0.05	0.26		
B 1119	Timothy grass,	99.74	0.16	0.10		
B 1120	Timothy grass,	99.43	0.23	0.34		
B 1121	Timothy grass,	99.49	0.32	0.19		
B 1122	Timothy grass,	99.84	0.04	0.12		
B 1132	Timothy grass,	99.67	0.11	0.22		
B 1133	Timothy grass,	99.82	0.18	0.00		
	Average,	97.19	2.20	0.61		
B 1103	Alsike clover,	92.43	6.26	1.31		
B 1104	Alsike clover,	82.52	14.93	2.55		
B 1105	Alsike clover,	93.53	6.25	0.22		1-58160
B 1125	Alsike clover,	99.05	0.81	0.14		
B 1127	Alsike clover,	96.90	2.82	0.28		
	Average,	92.89	6.21	0.90		

TABLE I.—RESULTS OF TESTS ON SPECIAL SAMPLES—Concluded.

Analyst's number.	Name of Seed.	Pure seed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
		Per ct.	Per ct.	Per ct.	Approx.	Approx.
B 1126	Common millet,	98.83	0.33	0.84		
B 1068	Kentucky blue grass,	82.72	0.63	16.65		
B 1069	Kentucky blue grass,	64.72	0.58	34.70		
	Average,	73.72	0.60	25.68		

AVERAGE PURITY OF OFFICIAL SAMPLES.

The results of the purity tests for each kind of seed of the 20 different kinds examined during the year were averaged and these results are shown in the following table. As will be noted the average purity for each kind of seed was in excess of the required standard, with the exception of that for spelt where only 2 samples were received and these average results were as a rule higher than those determined in the case of the seeds tested for purity during 1918.

Name of Seed.	No. of samples.	Standard of purity.	Pure seed.	Foreign seed.	Inert matter.
		Per ct.	Per ct.	Per ct.	Per ct.
Red clover,	68	97	98.69	0.85	0.46
Crimson clover,	6	97	98.63	0.79	0.58
Alfalfa,	33	97	99.58	0.22	0.20
Timothy grass,	56	97	99.56	0.21	0.23
Barley,	4	97	99.48	0.42	0.10
Spelt,	2	97	95.59	4.39	0.02
Wheat,	3	97	99.65	0.31	0.04
Oats,	8	97	99.57	0.29	0.14
Rye,	4	97	98.31	1.56	0.13
Alsike clover,	52	95	96.29	3.26	0.45
Perennial rye grass,	1	95	99.44	0.45	0.11
German millet,	1	95	99.41	0.19	0.40
Hungarian millet,	1	95	99.01	0.50	0.49
Common millet,	2		98.47	1.32	0.21
Golden millet,	3		99.39	0.29	0.32
White clover,	5	90	94.01	5.58	0.41
Redtop grass (hulled),	7	85	93.06	1.53	5.41
Redtop grass (unhulled),	1	75	75.10	2.46	22.44
Canadian blue grass,	5	75	76.15	11.23	12.62
Orchard grass,	5	75	75.53	1.47	23.00
Kentucky blue grass,	8	75	71.77	0.71	27.52
Total,	269				

RESULTS OF INSPECTION.

There were 269 offieial samples of agricultural seeds, including 20 different kinds, obtained by the speeial agents of the Department during 1919, and submitted to this Bureau to be tested for purity. The greater number of the samples eonsisted of red clover, alfalfa, timothy grass and alsike clover and the largest number or proportion of seeds which failed to meet the reqnired standards was found to be among the grasses, Canadian blue grass, orchard grass and Kentucky blue grass. The majority of the samples, however, represent seeds which were well above the requirements. Of the total number of lots of seeds sampled, 86 samples were guaranteed for purity in excess of the requirements and of this number 44 or about one-half met the higher guarantees. The average purity tests for each kind of seed were all, with the exception of that for spelt, above the standards and in many these averages were higher than those found in the samples examined during 1918. The number of samples in which noxious weed seeds were found present was 14 there being 9 samples of alsike clover found to contatin Canada thistle, 1 eontaining this seed in excess of the amount permitted. One sample of red clover was contaminated with Canada thistle, and 1 sample contained both the seeds of dodder and Canada thistle, 1 sample each of alfalfa and white clover containing dodder in excess of the proportion permitted and 1 of Canada blue grass contained Canada thistle.

Of the 68 samples of red clover 7 failed to meet the required standard of 97 per cent. pure, 1 sample showed the presence of Canada thistle, and 1 contained both the seeds of dodder and Canada thistle. There were 24 official samples representing shipments of seed where guarantees for purity were given of from 98.48 to 99.75 per cent. and only 10 of these samples exceeded these guarantees and 1 of them failed to meet both the standard and the claims made. They showed purity tests of from 90.70 to 99.92 per cent. and averaged 98.69 per cent. pure.

Of the 6 samples of crimson clover received 1 tested below the standard and they varied in purity from 96.57 to 99.70 and averaged 98.63 per cent. pure, 1 being guaranteed and exeeeding the amount claimed.

The seeds of alfalfa numbered 33 samples all of which were found to test above 97 per cent. pure as required, averaging 99.58 per eent. with variations of from 97.68 per cent. to 99.99 per cent. There were 15 shipments where gnarantees for purity in excess of the standard were given and 9 of these samples exceeded these higher guarantees.

There were 50 samples of timothy grass seed reeeived all of whieh exceeded the standard of 97 per cent. pure, testing from 98.11 to 99.90

per cent. and averaging 99.56 per cent. pure. Twenty-three of these samples were from shipments showing guarantees in excess of the requirements and of these 17 were found to meet and exceed these guarantees.

There were 21 samples of the seeds of cereal grains of barley, spelt, wheat, oats and rye received and tested for purity, and with the exception of 1 sample out of 2 of spelt, which fell below the standard and tested only 92.97 per cent., all exceeded the standard of 97 per cent. and averaged 99.48, 95.59, 99.65, 99.57 and 98.31 per cent. pure respectively.

There were 52 samples of alsike clover seed received and examined during the year, 15 representing shipments offered for sale with guarantees of purity in excess of the standard of 95 per cent. of from 97 to 99.50 per cent. Only 4 of these guaranteed lots met or exceeded the claims made and 5 samples were found to be below the standard as well as below their respective guarantees. Nine samples contained the seeds of Canada thistle and in 1 of these the proportion was in excess of 1 seed in 3,000.

One sample each of perennial rye grass, German and Hungarian millet gave purity tests exceeding the standard of 95 per cent. required and a few samples of common and golden millet were also tested for purity. White clover seed was represented by 5 samples, 1 being guaranteed but falling below this guarantee, showing purity tests of from 88.73 to 97.80 and averaging 94.01 per cent. pure, 1 being below the standard of 90 per cent. and containing the seeds of dodder in the proportion of 1 seed in 900, as will be noted.

Of the seeds of redtop grass 8 samples were received and tested, 7 being hulled and 1 unhulled, all of which exceeded the required standards. Of the hulled seed 2 were guaranteed and were found upon being tested to exceed these guarantees, varying from 86.84 to 95.73, and averaging 93.06 per cent. pure. The unhulled sample tested 75.10 per cent. pure.

The required standard of purity for the 5 samples of Canadian blue grass, 5 of orchard grass and 8 of Kentucky blue grass is 75 per cent., and 1, 2 and 5 samples of these respective kinds of seed fell below the standard upon being tested. The Canadian blue grass samples tested from 44.18 to 89.00, averaging 76.15 per cent.; the orchard grass seed from 68.22 to 82.10, averaging 75.53 per cent., and the Kentucky blue grass seed from 53.82 to 81.94, averaging 71.77 per cent. pure.

The table which follows shows the names and addresses of the seed growers and the dealers from whom the samples were secured by the special agents, the names of each kind of seed and the result in detail of the purity tests of each sample.

TABLE III.—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
	RED CLOVER.		Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
	THE ATLANTIC SEED CO., INC., PHILADELPHIA, PA.							
A1347	Alpha Brand,	L. W. Mumma, Jr., Florin,	98.88		0.03	1.09		
A1336	Alpha Brand Medium,	Early & Detweiler, Palmyra,	98.91	99.50	0.86	0.23		
A1380	Fancy Brand Medium,	S. Book & Brother, Quarryville,	98.25		0.59	1.16		
A1182	Red Clover,	M. C. Dietz & Son, Mechanicsburg,	99.54	99.75	0.28	0.18		
	E. W. CONKLIN & SON, BINGHAMTON, N. Y.							
A1418	Paragon Brand Medium,	Berwick Store Co., Berwick,	98.78		1.02	0.20		
	COURTEEN SEED CO., BUFFALO, N. Y.							
A1285	Mammoth,	Wm. Henry Maule, Inc., Philadelphia,	99.48		0.07	0.45		
	CRAVER-DICKINSON SEED CO., INC., BUFFALO, N. Y.							
A1356	Ace Brand Mammotb,	Blank & Gottshall, Sunbury,	97.35		2.04	0.61		
A1358	Ace Brand Mammoth,	Blank & Gottshall, Sunbury,	98.14		1.43	0.43		
A1361	Ace Brand Mammoth,	E. J. Rupp, Sunbury,	98.08		1.17	0.75		
A1346	Bird Brand Medium,	Muth Brothers, Elizabetbtown,	99.73	99.27	0.20	0.07		
A1339	Globe Brand Medium,	John B. Curry's Sons, Palmyra,	99.68	99.50	0.16	0.16		
A1413	Globe Brand Medium,	T. Harvey Doan, Berwick,	99.68		0.24	0.08		
A1328	Globe Brand Medium,	A. M. Weltmer's Sons, Lebanon,	99.77	99.80	0.13	0.10		
A1365	Medium,	Steinman Hardware Co., Lancaster,	99.23	99.50	0.48	0.29		
A1405	Pine Tree Brand Mammoth,	H. B. Sharpless, Bloomsburg,	98.04	99.50	1.66	0.30		
A1414	Pine Tree Brand Medium,	T. Harvey Doan, Berwick,	99.17		0.24	0.59		
A1423	Pine Tree Brand Medium,	Hartley & Blaine, Turbotville,	98.74	99.50	0.86	0.40		
A1332	Pine Tree Brand Medium,	Lebanon Hardware Co., Lebanon,	98.45		0.85	0.70		
A1216	Pine Tree Brand Medium,	K. L. McClain & Co., Tyrone,	99.36		0.28	0.36		
A1218	Pine Tree Brand Medium,	H. L. Orr, Tyrone,	99.14		0.40	0.46		
A1329	Pine Tree Brand Medium,	A. M. Weltmer's Sons, Lebanon,	98.93	99.25	0.60	0.47		

	CUMBERLAND SEED CO., CUMBERBERLAND, MD.							
A1396	Extra Fancy Mammoth,	P. J. Cover & Son, Meyersdale,	99.30	99.50	0.38	0.32		
	THE ALBERT DICKINSON CO., CHICAGO, ILL.							
A1399	Ace Brand Medium,	Shipley Hardware Co., Meyersdale,	98.55	98.48	0.93	0.52		
A1187	Pine Tree Brand,	McFarland Supply Co., Greensburg,	99.15		0.65	0.10		
A1350	Pine Tree Mammoth,	Swope Brothers, Johnstown,	99.49		0.29	0.22		
A1353	Pine Tree Medium,	Swope Brothers, Johnstown,	99.43		0.43	0.14		
	H. W. DOUGHTEN, INC., MOORESTOWN. N. J.							
A1223	Choice,	Henry F. Mitchell, Philadelphia,	96.59	98.50	1.03	2.38		
A1440	Freedom Brand Medium,	S. G. Updegraff & Son, Williamsport,	99.74		0.22	0.04		
	WALTER ELLIOTT, MILLERSBURG, O.							
A1200	Medium,	Denny & Allison, Hickory,	93.84		5.96	0.20		
	O. GANDY & CO., SOUTH WHITLEY, IND.							
A1295	Extra Fancy No. 10 Medium,	W. H. Dunlap, Jr., Canonsburg,	99.59		0.18	0.23		
A1299	Standard Fancy Medium,	George Renton & Co., Castle Shannon,	99.83		0.11	0.06		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1303	"Extra" Mammoth,	A. H. Hoffman, Inc., Landisville,	99.60	99.25	0.04	0.36		
A1300	"Extra" Mammoth,	A. H. Hoffman, Inc., Landisville,	99.57	99.50	0.05	0.38		
A1302	"Northwest" Medium,	A. H. Hoffman, Inc., Landisville,	99.62	99.75	0.24	0.14		
A1301	"Safe" Medium,	A. H. Hoffman, Inc., Landisville,	98.80	99.00	0.64	0.56		
	HOSTERMAN & STOVER, MILLHEIM, PA.							
A1408	Medium,	H. B. Sharpless, Bloomsburg,	99.76		0.20	0.04		
	T. C. JENKINS & CO., PITTSBURGH, PA.							
A1222	Medium,	J. G. Allen, Beaver Falls,	98.25		1.06	0.69		
	NATIONAL SEED CO., LOUISVILLE KY.							
A1286	Red Clover,	Wm. Henry Maule, Philadelphia,	99.55		0.16	0.29		
	PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1211	Fancy,	C. H. Miller Hardware Co., Huntingdon,	98.32		1.09	0.59		
A1207	Fancy,	John G. Simpson, Huntingdon,	98.62		1.01	0.37		
A1234	Faney Brand,	The Philadelphia Seed Co., Inc., Philadelphia,	99.34	98.75	0.38	0.28		
A1437	Puritan Brand Medium,	George S. Chalfont, Milton,	98.86	99.00	0.62	0.52		
A1233	Quaker Brand,	The Philadelphia Seed Co., Inc., Philadelphia,	99.74	99.50	0.15	0.11		
A1417	Quaker Brand Medium,	Berwick Store Co., Berwick,	99.53	99.50	0.26	0.21		
A1384	Quaker Brand Medium,	The Lancaster County Farmers Supply Co., Inc., Manheim.	99.42	99.50	0.25	0.33		

TABLE III.—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
A1343	Quaker Brand Medium,	Lehman & Wolgemuth, Elizabethtown,	99.25	99.50	0.41	0.34		
A1220	Red Clover,	Grazier Brothers, Tyrone,	99.44		0.20	0.36		
	WM. G. SCARLETT & CO., BALTIMORE, MD.							
A1393	Special,	W. M. Atkinson, McVeytown,	99.80		0.13	0.07		
	THE SPENCE & ROBERTS CO., JENETT, OHIO.							
A1201	Mammoth,	W. H. McPeak, Hickory,	96.09		2.02	1.89		
A1202	Medium,	W. H. McPeak, Hickory,	90.70		7.90	1.40	1-4550	1-18200
	STANDARD SEED CO., CLARINDA, IOWA.							
A1195	Acme,	Charles Moss, Hickory,	98.79		0.09	1.12		
A1196	Acme Mammoth,	Charles Moss, Hickory,	99.56		0.10	0.34		
A1191	Medium,	Charles Moss, Hickory,	92.50		5.34	2.16		1-18000
	STANFORD SEED CO., INC., BUFFALO, N. Y.							
A1200	Honor Brand Medium,	Canonsburg Milling Co., Canonsburg,	99.84		0.10	0.06		
A1184	Red Clover,	M. C. Dietz & Son, Mechanicsburg,	99.86		0.00	0.14		
A1205	Red Clover,	W. H. McPeak, Hickory,	99.84		0.04	0.12		
	S. G. UPDEGRAFF & SON, WILLIAMSPORT, PA.							
A1429	Medium,	McConnell Brothers, Hughesville,	99.65	99.50	0.07	0.28		
A1427	Medium,	H. L. Ort, Pennsdale,	99.92	99.50	0.00	0.08		
	W. W. WELLIVER, DANVILLE, PA.							
A1412	Buckeye Brand Medium,	T. Harvey Doan, Berwick,	98.69		0.88	0.43		

	WHITNEY-ECKSTEIN SEED CO., BUFFALO, N. Y.							
A1432	Mammoth,	H. J. Klingler & Co., Butler,	96.42		3.00	0.58		
A1431	Medium,	H. J. Klingler & Co., Butler,	95.03		4.13	0.84		
A1390	Pan-American,	Mifflin County Hardware Co., Lewistown,	98.42		0.97	0.61		
	UNKNOWN.							
A1266	A. A. A. Medium,	The I. W. Scott Co., Pittsburgh,	99.81		0.02	0.17		
A1247	Mammoth,	Beckert Seed Store, Pittsburgh,	98.79		0.38	0.83		
A1250	Medium,	Beckert Seed Store, Pittsburgh,	97.83		1.33	0.84		
A1372	Medium,	Sprecher & Ganss, Lancaster,	99.53		0.23	0.24		
A1261	Special Mammoth,	The I. W. Scott Co., Pittsburgh,	99.39		0.42	0.19		
A1263	Special Medium,	The I. W. Scott Co., Pittsburgh,	99.80		0.20	0.00		
		Average,	98.69		0.85	0.46		
	CRIMSON CLOVER.							
	JOHN J. BUFFINGTON & CO., BALTIMORE, MD.							
A1226	Crimson Clover,	Henry F. Michell Co., Philadelphia,	99.70	98.50	0.30	0.00		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1306	Crimson Clover,	A. H. Hoffman, Inc., Landisville,	99.59		0.29	0.12		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1284	Crimson Clover,	Wm. Henry Maule, Inc., Philadelphia,	98.26		1.31	0.43		
	UNKNOWN.							
A1244	Crimson Clover,	Beckert Seed Store, Pittsburgh,	98.98		0.40	0.62		
A1262	Crimson Clover,	The I. W. Scott Co., Pittsburgh,	98.65		1.12	0.23		
A1379	Crimson Clover,	Sprecher & Ganss, Lancaster,	96.57		1.34	2.09		
		Average,	98.63		0.79	0.58		
	ALFALFA.							
	THE ATLANTIC SEED CO., INC., PHILADELPHIA, PA.							
A1181	Alfalfa,	M. C. Dietz & Son, Mechanicsburg,	99.80	99.88	0.02	0.18		
A1341	Alpha Brand,	John B. Curry's Sons, Palmyra,	99.87	99.66	0.09	0.04		
	E. W. CONKLIN & SON, BINGHAMTON, N. Y.							
A1410	I. X. L. American Grown,	S. F. Rarig, Catawissa,	99.91		0.00	0.09		
	CRAVER-DICKINSON SEED CO., INC., BUFFALO, N. Y.							
A1383	Globe Brand,	The Lancaster County Farmers Supply Co., Inc., Manheim.	99.90		0.02	0.08		

TABLE III.—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
	THE ALBERT DICKINSON CO., CHICAGO, ILL.		Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
A1351	Globe Brand,	Swope Brothers, Johnstown,	99.97		0.00	0.03		
A1188	Pine Tree Brand,	McFarland Supply Co., Greensburg,	99.10		0.51	0.39		
A1401	Pine Tree Brand,	Shipley Hardware Co., Meyersdale,	99.92	99.60	0.03	0.05		
	H. W. DOUGHTEN, INC., MOORESTOWN, N. J.							
A1327	Fancy Brand,	A. M. Weltmer's Sons, Lebanon,	99.69	99.82	0.15	0.16		
A1443	Freedom Brand,	S. G. Updegraff & Son, Williamsport,	99.99		0.00	0.01		
	O. GANDY & CO., SOUTH WHITLEY, IND.							
A1294	Extra Fancy AA,	W. H. Dunlap, Jr., Canonsburg,	99.56		0.35	0.09		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1309	"Extra,"	A. H. Hoffman, Inc., Landisville,	99.98	99.75	0.00	0.02		
A1310	"Grimm" Genuine Strain,	A. H. Hoffman, Inc., Landisville,	99.79		0.06	0.15		
A1308	"Northwest,"	A. H. Hoffman, Inc., Landisville,	99.95	99.75	0.00	0.05		
	LOEWITH, LARSEN & CO., NEW YORK, N. Y.							
A1282	Alfalfa,	Wm. Henry Maule, Inc., Philadelphia,	99.76		0.06	0.18		
A1367	Alfalfa,	Steinman Hardware Co., Lancster,	99.75		0.05	0.20		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1213	Quaker Brand,	Francis Baker, Everett,	98.11		1.13	0.76		
A1439	Quaker Brand,	George S. Chalfont, Milton,	99.59	99.75	0.28	0.13		
A1382	Quaker Brand,	The Lancaster County Farmers Supply Co., Inc., Manheim.	99.64	99.80	0.18	0.18		
A1344	Quaker Brand,	Lehman & Wolgemuth, Elizabethtown,	99.86	99.75	0.03	0.11		
A1206	Quaker Brand,	John G. Simpson, Huntingdon,	99.25		0.73	0.02		

A1239	Quaker Brand Northwestern,	The Philadelphia Seed Co., Inc., Philadelphia,	99.45	99.50	0.02	0.53		
A1238	Quaker Brand Western,	The Philadelphia Seed Co., Inc., Philadelphia,	99.86	99.70	0.04	0.10		
	WM. G. SCARLETT & CO., BALTIMORE, MD.							
A1406	Oriole Brand,	H. B. Sharpless, Bloomsburg,	99.86	99.65	0.03	0.11		
A1444	Oriole Brand American,	E. E. Wentz, Lock Haven,	99.67	99.65	0.03	0.30		
	STANDARD SEED CO., CLARINDA, IOWA.							
A1194	Acme,	Charles Moss, Hickory,	98.99		0.84	0.17		
A1190	Choice,	Charles Moss, Hickory,	97.68		1.70	0.62	1-1000	
	THE STANDARD SEED CO., INC., BUFFALO, N. Y.							
A1185	Alfalfa,	M. C. Dietz & Son, Mechanicsburg,	99.52		0.07	0.41		
A1293	Honor Brand,	Canonsburg Milling Co., Canonsburg,	99.75		0.06	0.19		
A1335	Honor Brand,	Early & Detweiler, Palmyra,	99.62	99.75	0.12	0.26		
	WHITNEY-ECKSTEIN SEED CO., BUFFALO, N. Y.							
A1224	Alfalfa,	Henry F. Michell Co., Philadelphia,	99.72	99.60	0.08	0.20		
A1217	Eureka,	H. L. Orr, Tyrone,	99.76		0.19	0.05		
	UNKNOWN.							
A1256	Alfalfa,	Beckert Seed Store, Pittsburgh,	99.59		0.25	0.16		
A1377	Alfalfa,	Sprecher & Ganss, Lancaster,	99.35		0.12	0.53		
		Average,	99.58		0.22	0.20		
	TIMOTHY GRASS.							
	THE ATLANTIC SEED CO., INC., PHILADELPHIA, PA.							
A1337	Insurance Brand,	John B. Curry's Sons, Palmyra,	99.35	99.50	0.30	0.35		
	J. BOLGIANO & SON, BALTIMORE, MD.							
A1334	Timothy Grass,	Early & Detweiler, Palmyra,	99.63		0.12	0.25		
	JOHN J. BUFFINGTON & CO., BALTIMORE, MD.							
A1387	Timothy Grass,	Spanogle-Yeager Milling Co., Lewistown,	99.70	99.50	0.10	0.20		
	E. W. CONKLIN & SON, BINGHAMTON, N. Y.							
A1421	Arrow Brand,	Hartley & Blaine, Turbotville,	99.12	99.31	0.66	0.22		
A1411	King Brand,	S. E. Rarig, Catawissa,	99.47	99.60	0.26	0.27		

TABLE III.—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
	CRAVER-DICKINSON SEED CO., INC., BUFFALO, N. Y.		Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
A1359	Pine Tree Brand,	Blank & Gotshall, Sunbury,	99.86	99.50	0.07	0.07		
A1449	Pine Tree Brand,	E. C. Noll, Lewisburg,	98.85		0.47	0.68		
A1409	Pine Tree Brand,	W. McK. Reber, Bloomsburg,	99.80		0.12	0.08		
A1330	Pine Tree Brand,	A. M. Weltmer's Sons, Lebanon,	99.73	99.50	0.14	0.13		
	CUMBERLAND SEED CO., CUMBERLAND, MD.							
A1214	Extra Fancy,	Francis Baker, Everett,	99.58	99.50	0.38	0.04		
A1395	Extra Fancy,	P. J. Cover & Son, Meyersdale,	99.48	99.50	0.15	0.37		
	THE ALBERT DICKINSON CO., CHICAGO, ILL.							
A1189	Pine Tree Brand,	McFarland Supply Co., Greensburg,	99.83		0.07	0.10		
A1355	Pine Tree,	Eureka Stores, Windber,	99.60		0.14	0.26		
A1434	Pine Tree,	H. J. Klingler & Co., Butler,	99.69		0.14	0.17		
A1448	Pine Tree,	Wm. A. Nickles, Shippensburg,	99.68		0.26	0.06		
A1400	Pine Tree,	Shipley Hardware Co., Meyersdale,	99.90	99.50	0.07	0.03		
A1354	Pine Tree,	Swope Brothers, Johnstown,	99.73		0.06	0.21		
A1230	Timothy Grass,	Henry F. Michell Co., Philadelphia,	99.08	98.50	0.46	0.46		
	H. W. DOUGHTEN, INC., MOORESTOWN, N. J.							
A1441	Freedom Brand,	S. G. Updegraff & Son, Williamsport,	99.11		0.56	0.33		
	O. GANDY & CO., SOUTH WHITLEY, IND.							
A1297	Fancy Standard "A,"	W. H. Dunlap, Jr., Canonsburg,	99.50		0.16	0.34		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1311	"Farmers Choice,"	A. H. Hoffman, Inc., Landisville,	99.81	99.50	0.04	0.15		
A1312	"Northwest,"	A. H. Hoffman, Inc., Landisville,	99.88	99.85	0.10	0.02		

	LOEWITH, LARSON & CO., NEW YORK, N. Y.							
A1366	Timothy Grass,	Steinman Hardware Co., Lancaster,	99.61	99.40	0.14	0.25		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1438	Fancy Brand,	George S. Chalfont, Milton,	99.45	99.50	0.26	0.29		
A1236	Fancy Brand,	The Philadelphia Seed Co., Inc., Philadelphia,	99.64	99.40	0.25	0.11		
A1237	Puritan Brand,	The Philadelphia Seed Co., Inc., Philadelphia,	98.94	98.50	0.43	0.63		
A1416	Quaker Brand,	Berwick Store Co., Berwick,	99.80	99.70	0.04	0.16		
A1385	Quaker Brand,	The Lancaster County Farmers Supply Co., Inc., Manheim.	99.62		0.25	0.13		
A1209	Quaker Brand,	C. H. Miller Hardware Co., Huntingdon,	99.57		0.21	0.22		
A1235	Quaker Brand,	The Philadelphia Seed Co., Inc., Philadelphia,	99.73	99.70	0.01	0.26		
	ROCKWELL MFG. CO., NORTH BALTIMORE, OHIO.							
A1298	Timothy Grass,	F. W. Scott, Hays,	99.74		0.21	0.05		
	WM. G. SCARLETT & CO., BALTIMORE, MD.							
A1446	Timothy Grass,	E. E. Wentz, Lock Haven,	99.36	99.00	0.37	0.27		
	W. H. SMALL & CO., INC., EVANSVILLE, IND.							
A1287	Timothy Grass,	Wm. Henry Maule, Inc., Philadelphia,	99.00		0.10	0.30		
	THE STANDARD SEED CO., INC., BUFFALO, N. Y.							
A1426	Liberty Brand,	J. S. Artley, Muney,	99.71	99.50	0.09	0.20		
A1425	Liberty Brand,	B. Savidge, Turbotville,	99.48		0.23	0.29		
A1404	Liberty Brand,	A. W. Shuman & Son, Bloomsburg,	99.65	99.50	0.15	0.20		
A1403	Liberty Brand,	H. W. Walker Co., Somerset,	99.84		0.10	0.06		
A1292	Timothy Grass,	Canonsburg Milling Co., Canonsburg,	99.37	99.50	0.13	0.50		
A1388	Timothy Grass,	S. B. Weber & Sons, Lewistown,	99.66	99.50	0.24	0.10		
	WHITNEY-ECKSTEIN SEED CO., BUFFALO, N. Y.							
A1389	Imperator,	S. B. Weber & Sons, Lewistown,	99.16		0.57	0.27		
A1391	Pan-American,	Mifflin County Hardware Co., Lewistown,	99.66		0.17	0.17		
A1450	Pan-American,	J. Harvey Miller, Ligonier,	98.51		0.74	0.75		
A1349	Pan-American,	L. W. Mumman, Jr., Florin,	99.89		0.06	0.05		
A1430	Timothy Grass,	H. J. Klingler & Co., Butler,	99.56		0.17	0.27		
	UNKNOWN.							
A1271	Special,	The I. W. Scott Co., Pittsburgh,	99.82		0.09	0.09		
A1255	Timothy Grass,	Beckert Seed Store, Pittsburgh,	99.21		0.24	0.55		
A1258	Timothy Grass,	Beckert Seed Store, Pittsburgh,	99.57		0.22	0.21		
A1435	Timothy Grass,	George E. McQuiston, Grove City,	99.66		0.18	0.16		

TABLE III.—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
A1373	Timothy Grass,	Sprecher & Ganss, Lancaster,	99.79		0.03	0.18		
A1272	XXX Timothy,	The I. W. Scott Co., Pittsburgh,	99.73		0.08	0.19		
		Average,	99.56		0.21	0.23		
	BARLEY.							
	W. P. HECKLER, MEDINA, OHIO.							
A1277	White Swiss,	Wm. Henry Maule, Inc., Philadelphia,	98.95		0.94	0.11		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1315	Bearded Spring,	A. H. Hoffman, Inc., Landisville,	99.73		0.26	0.01		
A1316	Beardless Spring,	A. H. Hoffman, Inc., Landisville,	99.72		0.18	0.10		
	UNKNOWN.							
A1265	Beardless,	The I. W. Scott Co., Pittsburgh,	99.53		0.29	0.18		
		Average,	99.48		0.42	0.10		
	SPELT.							
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1317	Spelt,	A. H. Hoffman, Inc., Landisville,	98.21		1.79	0.00		
	NORTHRUP, KING & CO., MINNEAPOLIS, MINN.							
A1276	Spelt,	Wm. Henry Maule, Inc., Philadelphia,	92.97		6.98	0.05		
		Average,	95.59		4.39	0.02		

	WHEAT.							
	BECKERT SEED STORE, PITTSBURGH, PA.							
A1245	Spring,	Beckert Seed Store, Pittsburgh,	99.74		0.15	0.11		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1313	Marquis Spring,	A. H. Hoffman, Inc., Landisville,	99.94		0.06	0.00		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1275	Marquis Spring,	Wm. Henry Maule, Inc., Philadelphia,	99.26		0.74	0.00		
		Average,	99.65		0.31	0.04		
	OATS.							
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1325	Bumper Crop Seed,	A. H. Hoffman, Inc., Landisville,	99.90		0.00	0.10		
A1322	Climax Seed,	A. H. Hoffman, Inc., Landisville,	99.91		0.08	0.01		
A1323	Peerless Seed,	A. H. Hoffman, Inc., Landisville,	99.87		0.08	0.05		
A1324	Silvermine Seed,	A. H. Hoffman, Inc., Landisville,	99.78		0.10	0.12		
	WM. HENRY MAULE, INC., PHILADELPHIA, PA.							
A1279	Improved Swedish,	Wm. Henry Maule, Inc., Philadelphia,	99.95		0.00	0.05		
A1278	Maule's Bumper Crop,	Wm. Henry Maule, Inc., Philadelphia,	99.49		0.20	0.31		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1240	Swedish Select,	The Philadelphia Seed Co., Inc., Philadelphia,	97.80		1.87	0.33		
	UNKNOWN.							
A1376	White Seed,	Sprecher & Ganss, Lancaster,	99.84		0.00	0.16		
		Average,	99.57		0.29	0.14		
	RYE.							
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1314	Spring,	A. H. Hoffman, Inc., Landisville,	98.10		1.90	0.00		
	WHITNEY-ECKSTEIN SEED CO., BUFFALO, N. Y.							
A1274	Spring,	Wm. Henry Maule, Inc., Philadelphia,	98.24		1.76	0.00		

TABLE III—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
	UNKNOWN.							
A1252	Spring,	Beckert Seed Store, Pittsburgh,	99.37		0.26	0.37		
A1253	Winter,	Beckert Seed Store, Pittsburgh,	97.53		2.32	0.15		
		Average,	98.31		1.56	0.13		
	ALSIKE CLOVER.							
	THE ATLANTIC SEED CO., INC., PHILADELPHIA, PA.							
A1348	Alpha Brand,	L. W. Mummau, Jr., Florin,	96.35		3.02	0.63		
A1183	Alsike Clover,	M. C. Dietz & Son, Mechanicsburg,	97.95	98.15	1.87	0.18		
A1345	Safe Brand,	Muth Brothers, Elizabethtown,	97.98		1.81	0.21		
	E. W. CONKLIN & SON, BINGHAMTON, N. Y.							
A1419	Imperial Brand,	Berwick Store Co., Berwick,	97.24		2.63	0.13		
	CRAVER-DICKINSON SEED CO., INC., BUFFALO, N. Y.							
A1415	Globe Brand,	T. Harvey Doan, Berwick,	98.66		1.28	0.06		
A1326	Globe Brand,	A. M. Weltmer's Sons, Lebanon,	98.40	97.25	1.47	0.13		
A1357	Pine Tree Brand,	Blank & Gottshall, Sunbury,	96.24		3.42	0.34		
A1422	Pine Tree Brand,	Hartley & Blaine, Turbotville,	95.56	99.50	3.79	0.65		
A1331	Pine Tree Brand,	Lebanon Hardware Co., Lebanon,	96.47		3.26	0.27		
A1215	Pine Tree Brand,	K. L. McClain & Co., Tyrone,	97.65		1.87	0.48		
A1362	Pine Tree Brand,	E. J. Rupp, Sunbury,	95.93		3.67	0.40		
A1407	Pine Tree Brand,	H. B. Sharpless, Bloomsburg,	97.25	99.50	2.64	0.11		
	CUMBERLAND SEED CO., CUMBERLAND, MD.							
A1397	Fancy,	P. J. Cover & Son, Meyersdale,	99.05	99.00	0.44	0.51		

	THE ALBERT DICKINSON CO., CHICAGO, ILL.							
A1352	Pine Tree Brand,	Swope Brothers, Johnstown,	98.06		1.53	0.41		
	H. W. DOUGHTEN, INC., MOORESTOWN, N. J.							
A1442	Freedom Brand,	S. G. Updegraff & Son, Williamsport,	97.65		2.10	0.25		
	O. GANDY & CO., SOUTH WHITLEY, IND.							
A1296	Fancy,	W. H. Dunlap, Jr., Canonsburg,	97.78		1.85	0.37		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1304	"Extra,"	A. H. Hoffman, Inc., Landisville,	98.87	98.00	0.87	0.26		
A1305	"Northwest,"	A. H. Hoffman, Inc., Landisville,	96.61	99.00	2.85	0.54		
	LOEWITH, LARSEN & CO., NEW YORK, N. Y.							
A1283	Alsike Clover,	Wm. Henry Maule, Inc., Philadelphia,	97.30		2.37	0.33		
A1364	Alsike Clover,	Steinman Hardware Co., Lancaster,	95.38	98.70	4.24	0.38		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1242	Fancy Brand,	The Philadelphia Seed Co., Inc., Philadelphia,	96.56	97.00	3.17	0.27		1-11350
A1360	Puritan Brand,	E. J. Rupp, Sunbury,	95.46		3.88	0.66		
A1212	Quaker Brand,	Francis Baker, Everett,	98.63		0.84	0.53		
A1221	Quaker Brand,	Grazier Brothers, Tyrone,	98.74		0.83	0.43		
A1381	Quaker Brand,	The Lancaster County Farmers Supply Co., Inc., Manheim.	97.72	98.50	1.76	0.52		
A1342	Quaker Brand,	Lehman & Wolgemuth, Elizabethtown,	97.35	97.50	2.56	0.09		
A1210	Quaker Brand,	C. H. Miller Hardware Co., Huntingdon,	94.31		5.45	0.24		1-4000
A1208	Quaker Brand,	John G. Simpson, Huntingdon,	98.86		0.78	0.36		
	WM. G. SCARLETT & CO., BALTIMORE, MD.							
A1445	Oriole Brand,	E. E. Wentz, Lock Haven,	96.93	97.50	2.85	0.22		
	W. H. SMALL & CO., INC., EVANSVILLE, IND.							
A1398	Alsike Clover,	P. J. Cover & Son, Meyersdale,	98.30	98.00	1.22	0.48		
	THE SPENCE & ROBERTS CO., JENETT, OHIO.							
A1203	Alsike Clover,	W. H. McPeak, Hickory,	85.65		13.66	0.69		1-10100
	STANDARD SEED CO., CLARINDA, IOWA.							
A1192	Acme,	Charles Moss, Hickory,	95.85		3.86	0.29		1-86000
A1193	Acme,	Charles Moss, Hickory,	95.45		3.92	0.63		
A1197	Acme,	Charles Moss, Hickory,	95.28		4.36	0.36		

TABLE III—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed. Found.	Pure Seed. Guaranteed.	Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
A1198	Choice,	Charles Moss, Hickory,	69.95		25.89	4.16		1-1500
A1199	Fancy,	Charles Moss, Hickory,	91.93		7.40	0.67		1-41350
	STANFORD SEED CO., INC., BUFFALO, N. Y.							
A1291	Alsike Clover,	Canonsburg Milling Co., Canonsburg,	96.71		3.00	0.29		
A1204	Alsike Clover,	W. H. McPeak, Hickory,	97.06		2.53	0.41		
A1333	Arc Brand,	Early & Detweiler, Palmyra,	95.45		4.02	0.53		
A1392	Honor,	W. M. Atkinson, McVeytown,	99.08		0.88	0.04		
A1338	Honor Brand,	John B. Curry's Sons, Palmyra,	98.88		0.70	0.42		
A1424	Honor Brand,	B. Savidge, Turbotville,	96.96		2.63	0.41		
A1402	Honor Brand,	H. W. Walker Co., Somerset,	98.25		1.49	0.26		
	S. G. UPDEGRAFF & SON, WILLIAMSPORT, PA.							
A1428	Freedom Brand,	H. L. Ort, Pennsdale,	97.65	99.50	1.70	0.65		
	WHITNEY-ECKSTEIN SEED CO., BUFFALO, N. Y.							
A1433	Alsike Clover,	H. J. Klingler & Co., Butler,	97.16		2.55	0.29		1-103700
A1227	Alsike Clover,	Henry F. Michell Co., Philadelphia,	97.73	98.75	1.45	0.82		
A1219	Alsike Clover,	H. L. Orr, Tyrone,	95.92		3.73	0.35		
	UNKNOWN.							
A1251	Alsike Clover,	Beckert Seed Store, Pittsburgh,	96.20		3.27	0.53		
A1394	Alsike Clover,	H. C. Beerits' Sons, Somerset,	96.56		3.05	0.39		
A1186	Alsike Clover,	McFarland Supply Co., Greensburg,	92.93		6.58	0.49		1-21490
A1371	Alsike Clover,	Sprecher & Ganss, Lancaster,	97.38		2.40	0.22		1-13290
A1269	Special,	The I. W. Scott Co., Pittsburgh,	99.67		0.17	0.16		
		Average,	96.29		3.26	0.45		

	PERENNIAL RYE GRASS.							
	UNKNOWN.							
A1273	Short,	The I. W. Scott Co., Pittsburgh,	99.44		0.45	0.11		
	GERMAN MILLET.							
	THE ATLANTIC SEED CO., INC., PHILADELPHIA, PA.							
A1340	Fancy Brand,	John B. Curry's Sons, Palmyra,	99.41		0.19	0.40		
	HUNGARIAN MILLET.							
	J. CHAS. McCULLOUGH SEED CO., CINCINNATI, OHIO.							
A1280	Hungarian Millet,	Wm. Henry Maule, Inc., Philadelphia,	99.01		0.50	0.49		
	COMMON MILLET.							
	JOHN J. BUFFINGTON & CO., BALTIMORE, MD.							
A1386	Common Millet,	Spanogle-Yeager Milling Co., Lewistown,	98.78		1.10	0.12		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1436	Common Millet,	George S. Chalfont, Milton,	98.16	99.00	1.54	0.30		
		Average,	98.47		1.32	0.21		
	GOLDEN MILLET.							
	WM. G. SCARLETT & CO., BALTIMORE, MD.							
A1447	Oriole Brand,	E. E. Wentz, Lock Haven,	99.19	98.10	0.53	0.28		
	W. H. SMALL & CO., INC., EVANSVILLE, IND.							
A1281	Liberty or Golden Millet,	Wm. Henry Maule, Inc., Philadelphia,	99.56		0.24	0.20		
	UNKNOWN.							
A1254	Golden Millet,	Beckert Seed Store, Pittsburgh,	99.43		0.09	0.48		
		Average,	99.39		0.29	0.32		
	WHITE CLOVER.							
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1307	White Clover,	A. H. Hoffman, Inc., Landisville,	97.80		2.16	0.04		
	L. JEWELLES & CO., MILWAUKEE, WIS.							
A1225	Dutch,	Henry F. Michell Co., Philadelphia,	93.17	98.50	6.14	0.69		

TABLE III—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Continued.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
			Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
	UNKNOWN.							
A1246	"A" Dutch,	Beckert Seed Store, Pittsburgh,	96.80		2.95	0.25		
A1243	"B" Dutch,	Beckert Seed Store, Pittsburgh,	88.73		10.63	0.64	1-900	
A1378	White Clover,	Sprecher & Ganss, Lancaster,	93.53		6.02	0.45		
		Average,	94.01		5.58	0.41		
	REDTOP GRASS (HULLED).							
	THE ALBERT DICKINSON CO., CHICAGO, ILL.							
A1231	Recleaned,	Henry F. Michell Co., Philadelphia,	95.27	90.90	0.53	4.20		
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1318	Redtop Grass,	A. H. Hoffman, Inc., Landisville,	93.40		1.06	5.54		
	LOEWITH, LARSON & CO., NEW YORK, N. Y.							
A1368	Redtop Grass,	Steinman Hardware Co., Lancaster,	93.51		0.84	5.65		
	THE PHILADELPHIA SEED CO., INC., PHILADELPHIA, PA.							
A1241	Extra Fancy,	The Philadelphia Seed Co., Inc., Philadelphia,	95.73	94.00	0.33	3.94		
	UNKNOWN.							
A1257	Fancy,	Beckert Seed Store, Pittsburgh,	86.84		6.77	6.39		
A1268	Fancy,	The I. W. Scott Co., Pittsburgh,	92.35		0.57	7.08		
A1375	Fancy,	Sprecher & Ganss, Lancaster,	94.34		0.58	5.08		
		Average,	93.06		1.53	5.41		

	REDTOP GRASS (UNHULLED).							
	UNKNOWN.							
A1249	Redtop Grass,	Beckert Seed Store, Pittsburgh,	75.10		2.46	22.44		
	CANADIAN BLUE GRASS.							
	CANADIAN SEED CO., TORONTO, CAN.							
A1289	Canadian Blue Grass,	Wm. Henry Maule, Inc., Philadelphia,	77.71		3.10	19.19		
A1229	Canadian Blue Grass,	Henry F. Michell Co., Philadelphia,	89.00	90.00	4.31	6.69		
	E. F. CONKLIN & SON, BINGHAMTON, N. Y.							
A1420	Canadian Blue Grass,	Berwick Store Co., Berwick,	83.38		3.14	13.48		1-11540
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1321	Canada Blue Grass,	A. H. Hoffman, Inc., Landisville,	44.18		42.59	13.23		
	UNKNOWN.							
A1260	Canadian Blue Grass,	Beckert Seed Store, Pittsburgh,	86.47		3.01	10.52		
		Average,	76.15		11.23	12.62		
	ORCHARD GRASS.							
	A. H. HOFFMAN, INC., LANDISVILLE, PA.							
A1320	Orchard Grass,	A. H. Hoffman, Inc., Landisville,	73.09		0.90	26.01		
	LEOWITH, LARSON & CO., NEW YORK, N. Y.							
A1370	Orchard Grass,	Steinman Hardware Co., Lancaster,	68.22		1.27	30.51		
	LOUISVILLE SEED CO., LOUISVILLE, KY.							
A1232	Orchard Grass,	Henry F. Michell & Co., Philadelphia,	75.90	90.00	0.57	23.53		
	UNKNOWN.							
A1248	Orchard Grass,	Beckert Seed Store, Pittsburgh,	82.10		3.87	14.03		
A1267	Special,	The I. W. Scott Co., Pittsburgh,	78.33		0.74	20.93		
		Average,	75.53		1.47	23.00		
	KENTUCKY BLUE GRASS.							
	H. W. DOUGHTEN, INC., NEW YORK, N. Y.							
A1228	Kentucky Blue Grass,	Henry F. Michell Co., Philadelphia,	79.47	90.00	0.00	20.53		

TABLE III—RESULTS OF TESTS ON SAMPLES COLLECTED IN 1919—Concluded.

Analyst's number.	Name of Seed and Name and Address of Grower or Seedsman.	Name and Address of Dealer.	Pure Seed.		Foreign seed.	Inert matter.	Seeds of dodder.	Seeds of Canada thistle.
			Found.	Guaranteed.				
	A. H. HOFFMAN, INC., LANDISVILLE, PA.		Per ct.	Per ct.	Per ct.	Per ct.	Approx.	Approx.
A1319	Kentucky Blue Grass,	A. H. Hoffman, Inc., Landisville,	70.09		1.40	28.51		
	LEOWITH, LARSON & CO., NEW YORK, N. Y.							
A1288	Kentucky Blue Grass,	Wm. Henry Maule, Inc., Philadelphia,	71.22		1.28	27.50		
A1369	Kentucky Blue Grass,	Steinman Hardware Co., Lancaster,	63.68		0.40	35.92		
	THE MT. AIRY SEED FARM, PARIS, KY.							
A1363	Kentucky Blue Grass Lawn Seed,	Dives, Pomesroy & Stewart, Harrisburg,	53.82		0.38	45.80		
	UNKNOWN.							
A1270	Fancy,	The I. W. Scott Co., Pittsburgh,	81.05		0.51	18.44		
A1259	Kentucky Blue Grass,	Beckert Seed Store, Pittsburgh,	81.94		1.25	16.81		
A1374	Kentucky Blue Grass,	Sprecher & Ganss, Lancaster,	72.87		0.46	26.67		
		Average,	71.77		0.71	27.52		